



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: <b>CASINO GAME WITH COMBINATION DISPLAY</b>  <div data-bbox="329 1106 1313 1696" data-label="Image"> </div>		
(57) Abstract  A casino game combines two displays, each for a different game play. A first display (14) provides game play information for a conventional "slot" game, a second display (20) overlies the first display and surrounds the first game play information field. The second display is preferably an electro-luminescent device.		

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CASINO GAME WITH COMBINATION DISPLAY

## BACKGROUND OF THE INVENTION

This invention is directed generally to casino games, and more particularly to gaming apparatus using a combination, overlapping display.

5           The marriage of electronics and games of chance have allowed casinos to provide their patrons with a dazzling array of game play choices. Today, patrons can not only enjoy the traditional games of chance in electronic form, but also games of chance created by combining features of one or more traditional games. Consider, for example, the well-known and long-established "slot" or "slot machine", which has traditionally included mechanical or  
10   electro-mechanical apparatus to spin cylinders carrying game symbols that, the player hopes, will stop spinning to exhibit a winning predetermined combination of symbols. Such "slot" games are available in various electronic forms with varying enhancements, some of which involve combining the slot machine concept (i.e., the revolving cylinders) with other games of chance. One novel combination is the slot game and a roulette-type of game in which an  
15   electronic version of a roulette wheel is combined with (usually mounted above) the slot game display. According to this combination, game play begins with the slot game, which provides a player with a chance to win a "free spin" of the roulette wheel should a predetermined combination of symbols (or a single "free spin" symbol) appear when spinning cylinders stop. If a free spin is won, the player is then given the opportunity to play the roulette game. Such a  
20   combination game, however, because of its size (i.e., the "slot" portion and display, and the roulette wheel display - which are separate) is best suited for use in casino halls as a floor-type machine.

          However, casinos recognize that cocktail lounge patrons may also enjoy game play while seated at a table or in the lounge. It is believed that lounge patrons are normally not  
25   disposed to leave their lounge seats to play a floor-mounted game in the lounge, until they finish their ordered refreshments. Rather, lounge patrons, while enjoying the lounge amenities, would prefer to remain in the lounge until finished instead of interrupting their enjoyment in favor of a trip to the main floor of the casino to play floor-mounted machines. Thus, the combined slot/roulette game would not find much use in a lounge area, although it does enjoy relative popular use on the  
30   main floors of a casino.

          In addition, local or neighborhood taverns typically do not use floor-mounted gaming machines because they tend to take up too much space. Rather, such establishments tend to favor

smaller game machines, preferably those that can be mounted in, or sit on, a table or counter top in order that they not take up valuable tavern space.

## SUMMARY OF THE INVENTION

The invention provides a combination display for playing a combined slot/roulette-type game that takes up much less display space than heretofore, making it available for placement in tables and other space-limited areas such as are found in casino lounges and neighborhood taverns.

Basically, the invention is directed to a first display providing information for the slot-type game, including one or more reels. A second display, preferably in annular form and overlapping the first display so as to surround the reels, is used. The second display provides a game device representation that, according to rules of game play, can be caused to follow a path formed by the annular display, simulating roulette-type game play.

The first display is for a conventional slot-type game apparatus, and includes traditional, mechanical-style wheels that operate in response to electromechanical means to rotate and display game indicia on outer surfaces of the reels. As is traditional, game play includes spinning the reels in the hopes that they stop to align specific ones of the game indicia in a winning combination. The second display is for a roulette-style game and is preferably an electro-luminescent device that displays segments or areas in differing colors. A second game marker is presented on the electro-luminescent device which, according to game play, is set in motion with the hope that it will stop in a winning display segment only when the player wins a "free spin" playing the slot game.

A primary advantage of the invention is that by combining the two displays in the manner described, much less space is used for the combined game (i.e., the slot game and the roulette-type game). This, in turn, allows the game to be incorporated into a table or (bar) counter. Patrons no longer need to interrupt their lounge activities or remove themselves from a lounge table, for example, in order to play such a combined game. Rather, lounge patrons can play while seated, enjoying the game together with refreshment.

These, and other, aspects and advantages of the invention will become apparent to those skilled in the art upon a reading of the following detailed description of the invention, which should be taken in conjunction with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of a counter or table section showing the game device of the present invention mounted thereon to illustrate its use;

Fig. 2 illustrates the manner in which the two game displays are combined, one overlapping the other;

Fig. 3 illustrates the mechanism for controlling game play and the displays of Fig. 2;  
and

Fig. 4 is a flow chart representation of game play.

### DETAILED DESCRIPTION

5 Referring now to the figures, and for the moment specifically Fig. 1, combination game display of the present invention designated generally with the reference numeral 10 is shown as being mounted in a counter top 12, although those skilled in this art will readily see that other mounting methods can be used (e.g., the display can be mounted flush with the mounting surface). The combination game display 10 includes a first display 14, which could be a cathode ray tube (CRT)  
10 capable of displaying game play information for a "slot" type game apparition including reels 16 (better seen in Fig. 2). In addition to reels 16, the first display may carry or present other game information such as payout schedules 18.

Preferably, however, the display 14 is a more traditional slot-type display, incorporating physical rotatably-mounted wheel-type reels that carry game markers. A traditional  
15 display is preferred because the reels provide a patron or user with a feeling that the reels have a limit, whereas a CRT display provides one with the uneasy illusion that the reels are limitless tapes.

Continuing with the combination game display 10, juxtaposed and overlying the display 14 is a second display 20, annular in fashion, and formed to surround most of the game information (i.e., the reels 16 and any payout information 18) provided by the first display 14. As will  
20 be discussed below, the second display 20 includes a movable representation that is meant to travel the path formed by the second display 20 according to a roulette-type game play.

Also mounted in the counter top 12, proximate the first and second displays 14, 20, are player controls 22, a coin-drop aperture 24 for accepting wagers to play the game using the combination game display 10, and (beneath the counter top) a payout chute 26 whereat winnings may  
25 be dispensed.

The game controls 22 include four finger-depressible buttons, 30, 32, 34 and 36. The use of these controls (finger-depressible buttons 30-36) will become clear when the game play is discussed below.

Turning now to Fig. 2, the combination game display 10 is illustrated in greater detail,  
30 better showing the first and second displays 14, 20 and their combination. As indicated above, the first display 14 is preferably one of traditional design and, therefore, includes the wheel-like reels 16 that, on an outer peripheral surface 17 of each, carry game icons 39. (The payout schedule 18 (Fig. 1), or other information that may be associated with the game, is not shown on the first display 14 in Fig. 2 in order to keep from unduly complicating the illustration.) A win line 19 identifies winning  
35 combinations, if any, when the reels 16 are caused to rotate and then stop.

The second display 20, as indicated above, is preferably an electro-luminescent system such as is available from Durel Corporation, 2225 West Chandler Blvd., Chandler, Arizona. The display is divided into segments or areas 21 (21a, 21b, . . . , 21j) that are preferably identified by color to differentiate same segments 21 from others. For example, the areas or segments 21b, 21d, 21f, 21h and 21j could be one color, e.g., green, while the segments 21c, 21e, 21g and 21i are red. The segment 21a is designated a jackpot area, and may itself be sub-divided into sub-segments 23a, 23b, 23c. Also displayed on the second display 20 is a movable game icon 40. Each segment 21 would provide a player a payout of coin or other prize should the game icon 40 complete its travel in the particular segment.

10           The second display 20 is used for secondary game play, entered only through the principal game play using display 14: the slot game. As will be seen, the game play using second display 20 will initiate movement of the game icon 40 along the annular path formed by the second display 20 (e.g., in a counterclockwise direction) to randomly halt in one of the segments 21.

15           Turning now to Fig. 3, the game system for operating the displays 14 and 20 and their information-providing devices (e.g., reels 16, colored sections 21, and game icon 40) is generally illustrated. As Fig. 3 shows, the game system, designated generally with the reference numeral 50, includes a processor unit 52 that connects to a system bus 54 for communicating data to, and receiving data from, other elements of the system, including memory unit 56, which can be a combination of random access memory (RAM) and read only memory (ROM) and may even include such secondary storage as is needed (e.g., disc, tape, etc. - not shown).

20           The system bus 54 also connects to various interface elements, including a reel interface 58 which includes the necessary logic and driver circuits as is conventional, for controls 22. An electro-luminescent (EL) interface connects the system bus 54, and therefore the processor unit 52, to the second (electro-luminescent) display 20. Finally, an interface unit 25 62 connects the system bus 54 to the player controls 22, a coin receipt mechanism 25 (which operates in conjunction with the coin slot 24, Fig. 1, to detect the receipt of wagers), and a coin payout unit 27 which, in the event game play produces a winning combination of reels 16 or a location of the game icon 40 in a winning section 21, deposits the proper number of coins in the payout chute 26. The interface unit 62 contains the necessary drivers, receivers and 30 interface circuits to translate and communicate data between the player controls, coin receipt and coin payment units 22, 25 and 27, and the processor unit 52.

Fig. 3 also illustrates, in phantom, an alternate embodiment of the invention. In place of the electro-mechanical reels 16 and the secondary display 20, there can be, according to the alternate embodiment, a single, cathode ray tube (CRT) display 66 and an associated

interface and driver unit 68 that connects to the system bus 54. The second display 20 may either be used with the CRT 66, overlaying its front viewing surface 67, and juxtapose its periphery, or the secondary display 20 may be electronically generated and displayed on the screen 67 in combination with representations of the reels 16 and any other game play information necessary, e.g., payout schedules. However, as indicated above, casino patrons tend to place more confidence in traditional mechanical, or electromechanical reels, such as reels 16, than those generated on a display screen. Accordingly, it is preferred that the first display 14 incorporate such electromechanical reels.

Game play using the first and second displays 14 and 20, proceeds generally as follows, and is broadly illustrated in the procedure 80 of the flow diagram shown in Fig. 4. The procedure 80 begins with the acceptance of a wager to move the procedure 80 from a WAIT state to the first game play state at step 82. At step 82 a player will drop one or more coins into the coin slot 24 (Fig. 1) which are detected by the coin receipt unit 25. Information concerning the wager detected at step 82 is delivered to the processor unit 52 via the interface 62 and system bus 54 (Fig. 3). The processor unit will then develop random signalling for initiating rotation of the reels 16, sending that signalling in data form to the reel interface 58, causing the reels 16 to spin (step 84), and ultimately come to a stop with a game indicia 39 aligned with the win bar 19.

At step 86 the processor unit 52 will sense, by conventional means, which game indicia 40 are aligned with the win bar 19 to determine whether or not a winning combination has been obtained. If so, the procedure 80 will move to step 88 where the processor unit 52 will initiate payment by actuating the coin payment unit 27 to distribute the requisite amount of coin to the coin chute 26.

If, however, a winning combination is not established, the player still has a chance for further winnings. Thus, the procedure so will move from the initial win determination step 86 to step 90 where it is determined whether or not the game indicia 39 aligned with the win bar 19 indicates that the player has achieved a "free spin," allowing the player to engage in the secondary game play, using the second display 20. If the step 90 determines that no free spin has been won, the procedure 80 returns to the WAIT state to await another wager. If, on the other hand, the aligned game symbols checked at step 90 indicate that a free spin is in order, the player will be given his/her free spin and, at step 82, the processor unit 52 will develop data that is delivered to the second display 20, via the EL

interface 60. That data that will cause the game icon 40 to begin travel in a counterclockwise direction around the path formed by the second display 20 to randomly stop in one of the segments 21 of the second display 20. (The distance traveled by the game icon 40 is randomly selected by conventional means.) Thus, at step 86 the processor unit 52 will determine  
5 whether or not the game icon 40 ended its "spin" in one of the sub-segments of the jackpot area 21a of the display 20. If so, the procedure again returns to await further wagers at the WAIT state.

If, on the other hand, the game icon 40 did not terminate its travel in the jackpot area 21a of the second display 20, the determination step 96 will be exited in favor of step 98  
10 where it is determined whether or not the player, by actuation of the finger-depressible button 36 of the game controls 22, requests a payout according to a pay schedule (not shown) relating to the particular segment 21 whereat the game icon 40 completed its journey and now resides. If so, again the procedure 80 goes to the step 88 where winnings are dispensed and returns to await further wager.

15 However, the player may continue secondary game play. As indicated above, the segments 21 (exclusive of the jackpot area 21a) are alternating colors. If, after the spin step 94, the game icon 40 stops in one of those colors, for example, green, the player may initiate another spin in the hopes that the game icon 40 will terminate its second "spin" travels in a segment also colored green. or, the player may guess that the game icon 40 will terminate  
20 its travel in the alternate color, i.e., red.

Accordingly, at step 100 (if the player has not requested a payout at step 98), the player selects red (finger-depressible button 34) or green (finger-depressible button 32), initiating another "spin" to once again place the game icon 40 on a journey along the path formed by the second display 20. Again, the game icon 40 will terminate its travel in one of  
25 the segments 21. If it is the jackpot segment 21a, the processor unit 52 will immediately move the procedure 80 to pay winnings at step 88, and return to WAIT state in expectation of another wager. If, on the other hand, the color of the segment 21 at which the game icon 40 terminates its trip matches that selected by the player, as determined in step 106, the procedure 80 returns the player to step 98 to determine if the player now wishes additional payout, or  
30 would like to try for another spin and a chance to increase winnings. If the player declines a payout at this time, and elects to go for another spin, the player will again select a color at step 100 and the procedure continues until the player either requests a payout (step 98) or the color



selected by the player does not match that of the segment 21 at which the game icon 14 ended its travel (step 106), at which point the player is returned to step 82 to await further wager.

Each of the segments 21 corresponds to a particular payment. Each time the player selects a color for an additional "free spin" at step 100, and the color he selects is correct (i.e., the game icon terminates travel in a color corresponding to the selected color), the payout at which the game icon first stopped doubles.

In an alternate embodiment of the invention, a multiplier value could be applied to the payout values represented by or associated with each the colored segments 21 of the second display 20. The multiplier is preferably displayed in a display area (not shown) of the first display 14 as flashing values that continually change while the game icon 40 travels along the path of the second display 20. For example, the flashing value would change from "3:1" to "8:1" to "5:1" to "2:1" and so on, stopping at one value when the game icon 40 terminates its travel. The flashing values would mean that whatever payout value was associated with the particular segment 21 in which the game icon stopped would be multiplied by the value then showing. For example, assume the reels 16 of the primary game turn up stopped at values that provide a player with the opportunity to play the second game using the second display 20. The player takes the free spin, and the game icon 40 begins its travel along the path of the second display 40, to stop in the segment 21h which may have a payout associated with it of 40 coins. While the game icon was moving, the multiplier would be flashing through possible multiplier values to randomly stop, with the stopping of the game icon 40, at one particular value, say 3:1. This means that the player is entitled to a prize of 40 coins, as associated with the segment 21h in which the game icon stopped, multiplied by 3, i.e., 120 coins.

Now, continuing with this alternate embodiment, the player has a choice: take the payout now available (120 coins, to continue this example), or try to risk that payout in favor of an increase in the prize. If the player takes the latter choice, he or she will pick the color of the segment 21 that, hopefully, the game icon 40 will stop in when the next free spin is initiated through the game controls 22 - as described above. The second free spin, if taken, does not make a change to the multiplier, that changes only with the first free spin. If the player guesses correctly, the player now has as a prize that is the combination of the two segments, the payout associated with segment 21h, and the payout associated with the segment in which the game icon has stopped after this second free spin - both multiplied by the multiplier displayed in a display area (not shown) of the first display 14, i.e., 3. The player can

continue to risk the prize so far won in order to increase that prize, to take the prize and begin again.

While a full and complete disclosure of the invention has been provided herein, it should be obvious to those skilled in the art that modifications and alterations can be made without departing from the scope of protection afforded by the claims hereinafter. For  
5 example, the electro-luminescent display 20 could be replaced by a liquid crystal display, or even an annular array of individual lights. Also, rather than using the finger-depressible buttons 30-36 for the game controls 22, the first display 14 could be one that is touch sensitive, and the game controls would be displayed on the first screen 14 and selected by merely  
10 touching specific screen areas in conventional fashion.

I CLAIM:

1. Gaming apparatus, comprising:  
5 a housing;  
a first display mounted in the housing for presenting a first game indicia to a user for viewing;  
a second display mounted in the housing and in surrounding relation to the first display for presenting a second game indicia to the user for viewing; and  
10 control means for effecting game play by changing the first and second game indicia according to game play.
2. The gaming apparatus of claim 1, wherein the second display is an electro-luminescent lamp display.  
15
3. The gaming apparatus of claim 2, wherein the first display comprises a plurality of reels carrying the first game indicia.
4. The gaming apparatus of claim 2, wherein the first display comprises a  
20 plurality of electromechanical wheels carrying the first indicia.
5. The game device of claim 5, wherein the first display comprises a CRT.
6. A game device, including:  
25 a first display, including a plurality of cylindrical reels carrying first game indicia; a second display surrounding the first display and presenting a second game indicia, the second indicia including demarcations for identifying a number of different areas of the second display, and a game symbol movable on the second display for game play to stop in a one of the number of different areas;  
control means for causing the cylindrical reels to rotate for game play, and to create  
30 the game symbol that is moved on the second display for an additional game play.
7. The game device of claim 6, wherein the second display includes an annular electro-luminescent system.

8. The game device of claim 7, wherein the demarcations are color.

9. Game display apparatus, including:

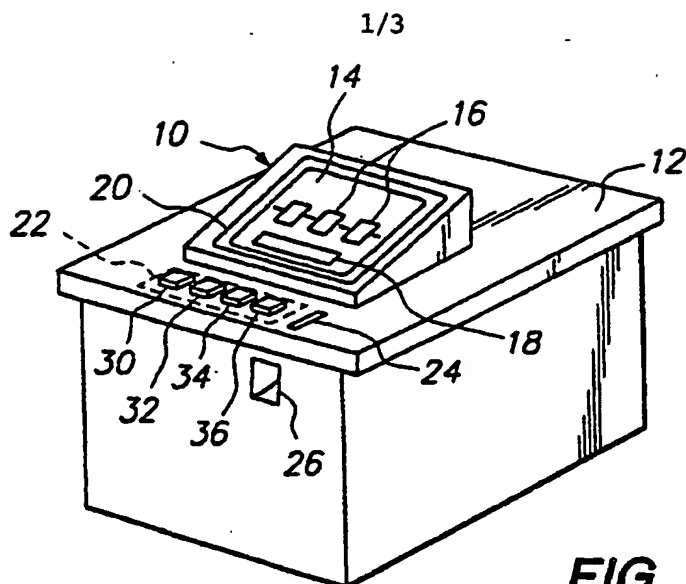
5 a first display including a plurality of wheel-shaped, rotatably-mounted reels

each having an outer facing surface carrying first game indicia;

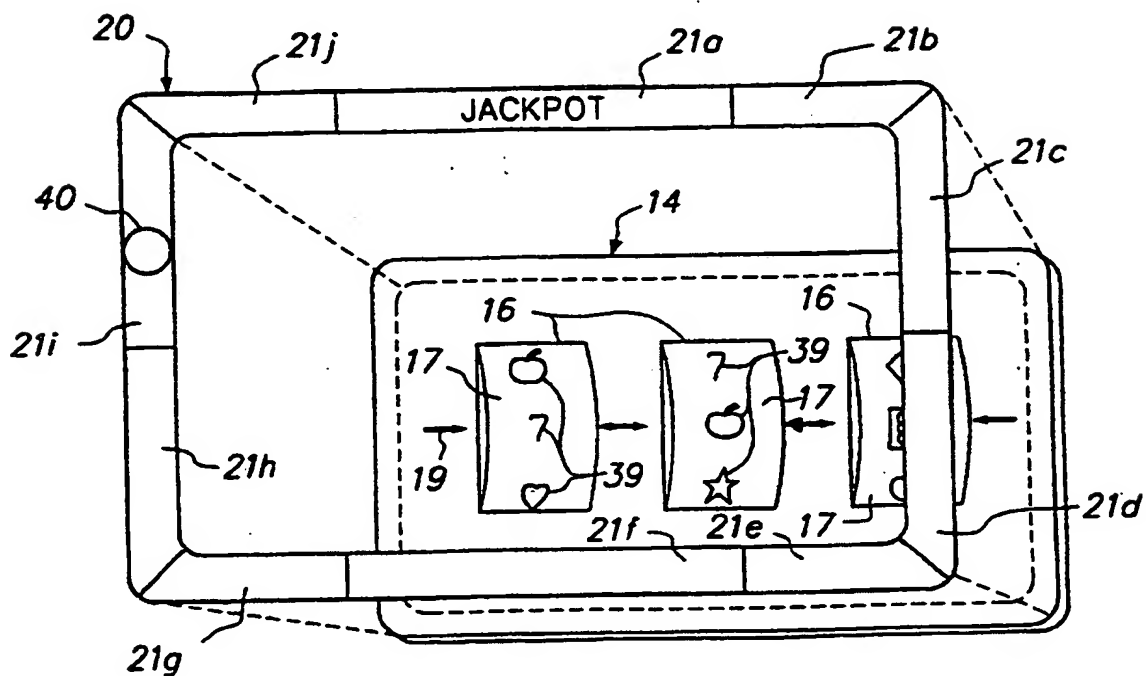
a second, annular display located in surrounding relation to the plurality of reels and having a plurality of differently colored areas and a second game indicia moveable on the second annular display through the plurality of areas.

10

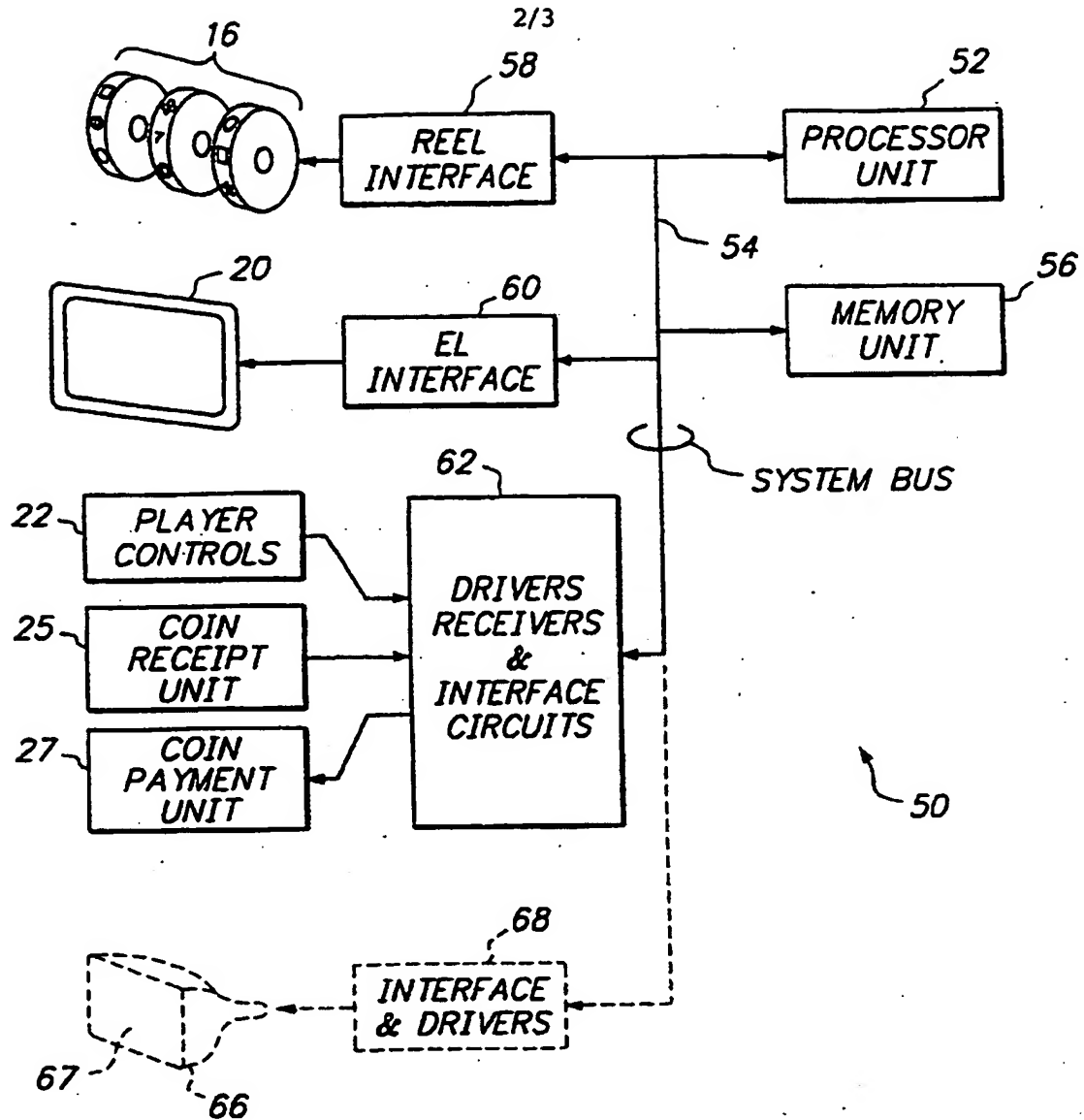
10. The game display apparatus of claim 9, wherein the second display is an electro-luminescent device.



**FIG. 1**



**FIG. 2**

**FIG. 3**

3/3

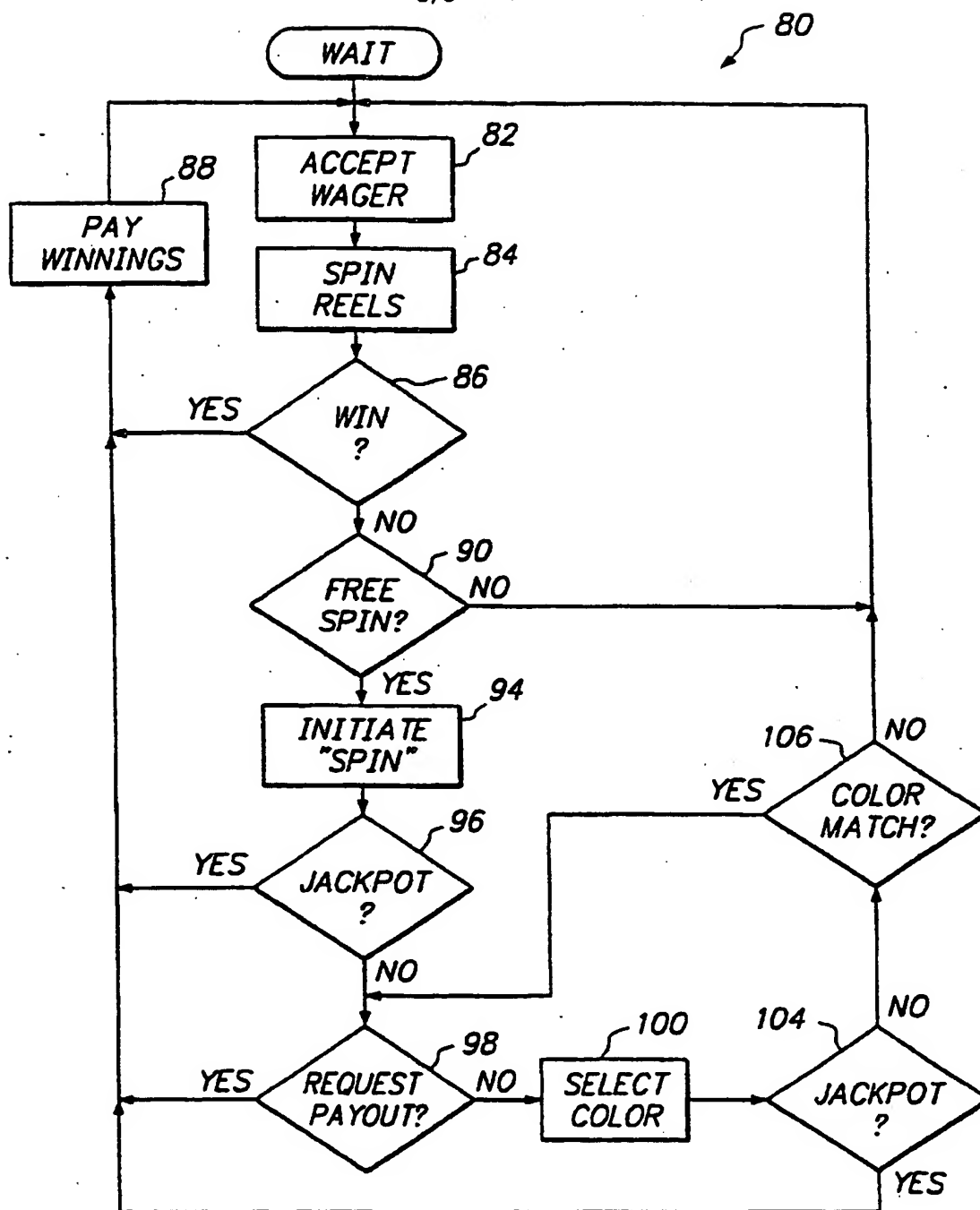


FIG. 4

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US99/07635

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G07F 17/34; A63F 9/22

US CL : 463/20, 31:273/143R, 138.2

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 463/20, 31:273/143R, 138.2

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,462,277 A (TAKEMOTO) 31 October 1995, See col. 5, lines 18-27.	1, 3, 4, 6 and 8-10
Y	US 5,472,195 A (TAKEMOTO et al.) 05 December 1995, See col. 8, lines 18-32.	5
Y	GB 2,253,299 A (CHADWICK) 02 September 1992, See page 8, lines 12-17.	2, 7

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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